

REMARKS

Claims 1-24 were pending in the above-identified application when last examined and stand rejected. The rejection was made final. Applicants are submitting a request for continued examination (RCE) and request entry and consideration of the above amendment to claim 1.

Claims 1-24 were rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Applicants respectfully traverse the rejection.

Independent claim 1 as amended above recites, “A method comprising: ... selecting $2N$ operators ..., wherein selecting the $2N$ operators includes each of n players selecting one or more of the $2N$ operators ..., the operators being selected by the player according to a choice of the player regarding a cooperative effort; applying each of the $2N$...; evaluating a final state vector that results from the application of the $2N$ operators to thereby assign respective results to the players; and the n players performing obligations according to the results respectively assigned, the results designating whether respective players will cooperate in or defect from the cooperative effort.”

The process of claim 1 is not directed to merely abstract ideas or a mathematical algorithm because claim 1 requires players to make selections and has a tangible final result of “the n players performing obligations according to the results respectively assigned.” In the sentence spanning pages 4 and 5 of the Final Office Action, the Examiner grouped “the players” along with “state vector”, “operators”, and “entangled qubits” as being disclosed theoretically or mathematically. However, claim 1 and Applicants’ specification clearly indicate that the players are physical and not mere mathematical entities. In particular, claim 1 recites “a choice of the player regarding a cooperative effort” and “designating whether respective players will cooperate in or defect from the cooperative effort.” The activities of choice, cooperation, and defection are not normally assigned to or associated with mathematical entities. In support of the Examiner’s interpretation of players as being theoretical or mathematical, the Examiner cited paragraph [0016] of Applicants’ specification. Paragraph [0016] refers to a “player k .” However, distinguishing players using an index k does not make a player a mathematical entity, in the same way that assigning a social security number does not change a person into a number. Accordingly, claim 1 clearly recites physical activities and tangible results and is statutory subject matter.

Claims 2-9 depend from claim 1 and are directed to statutory subject matter for at least the same reasons that claim 1 is directed to statutory subject matter.

Independent claim 10 is statutory subject matter because it recites a new and useful machine. In particular, claim 10 recites, "A system comprising: a source of multiple channels of entangled photon pairs; a plurality of stations ...; a first optical network ...; and a measurement system coupled to measure the states of the photons after delivery to the stations." In rejecting claim 10, the Final Office Action stated, "independent claim 10 is directed to a system where all of the elements would reasonably be interpreted by one of ordinary skill in the art in light of the disclosure as software." (Final Office Action, page 3, first paragraph.) This is clearly incorrect. For example, Applicants know of no way that "a source of multiple channels of entangled photon pairs" could be implemented in software. A photon is a physical thing, a particle of light, and a physical system is required to produce a photon, an entangled pair of photons, or "multiple channels of entangled photon pairs." Further, claim 10 recites "a measurement system coupled to measure the states of the photons," and therefore clearly requires a physical system to measure physical objects.

Claims 11-24 depend from claim 10 and are directed to statutory subject matter for at least the same reasons that claim 10 is directed to statutory subject matter.

For the above reasons, Applicants request reconsideration and withdrawal of the rejection under 35 U.S.C. § 101.

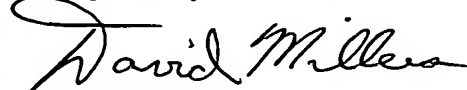
Claims 1-24 were rejected under 35 U.S.C. § 112, first paragraph, for lacking sufficient disclosure in the specification of how to practice the invention. In particular, the Office Action indicated, "If the application fails as a matter of fact to satisfy 35 U.S.C. § 101, then the application also fails as a matter of law to enable one of skill in the art to use the invention under 35 U.S.C. § 112." (Final Office Action, page 3, last paragraph.) For the reasons indicated above, claims 1-24 satisfy 35 U.S.C. § 101. Since no other lacking of the specification or claims was asserted in the rejection under 35 U.S.C. § 112, first paragraph, Applicants request reconsideration and withdrawal of this rejection.

In summary, claims 1-24 were pending in the application. This submission amends claim 1 and leaves claims 2-24 in the form previously examined. For the above reasons, Applicants respectfully request withdrawal of the final rejection and allowance of the application including claims 1-24.

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Respectfully submitted,



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